

CLAIMS

1. A process of forming a thin film on a large size glass substrate by spraying comprising the steps of:

preparing, as the large size glass substrate, plate glass produced by a float bath process in which molten glass is poured into an Sn bath and gradually hardened;

applying a coating solution containing an alcohol as a solvent onto the bottom surface of the plate glass, which is formed by bringing the molten glass into contact with the Sn bath, by spraying; and

forming a metal oxide thin film.

2. A process of forming a thin film on a large size glass substrate by spraying comprising the steps of:

applying a coating solution containing an alcohol as a solvent and water of from 5% by mass to 15% by mass onto the large size glass substrate by spraying; and

forming a metal oxide thin film.

3. A process of forming a thin film on a large size glass substrate by spraying comprising the steps of:

preparing, as the large size glass substrate, plate glass produced by a float bath process in which molten glass is poured into an Sn bath and gradually hardened;

applying a coating solution containing an alcohol as a solvent and water of from 5% by mass to 15% by mass onto the bottom surface of the plate glass, which is formed by bringing the molten glass into contact with the Sn bath, by spraying; and

forming a metal oxide thin film.

4. The process of forming a thin film on a glass substrate according to any one of claims 1 to 3, wherein among the water contained in the coating solution, the water of from 5% by mass to 10% by mass with respect to the total coating solution is added after an alcohol solution of a metal oxide raw material is prepared.

5. The process of forming a thin film on a glass substrate according to any one of claims 1 to 4, wherein the metal oxide thin film comprises titanium oxide and/or silicon oxide.
6. The process of forming a thin film on a glass substrate according to any one of claims 1 to 4, wherein the coating solution comprises titanium alkoxide and/or silicon alkoxide.
7. The process of forming a thin film on a glass substrate according to any one of claims 1 to 6, wherein the coating solution comprises titanium oxide fine particles and/or silicon oxide fine particles.
8. The process of forming a thin film on a glass substrate according to any one of claims 1 to 7, wherein the coating solution is applied by spraying onto the glass substrate while keeping the surface temperature of the glass substrate at 35°C or lower.
9. The process of forming a thin film on a glass substrate according to any one of claims 1 to 8, wherein the coating solution is applied by spraying onto the glass substrate while keeping the surface temperature of the glass substrate at 35°C or lower and then the surface temperature of the glass substrate is raised to 100°C to 300°C.
10. A glass substrate coated with a thin film, wherein the substrate is produced by the process according to any one of claims 1 to 9.